# Teaching Waffle how to wiggle

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# Introduction

- What is Waffle
- Waffle API
- glx, cgl, egl, wgl and waffle
- Retro-fitting wgl in waffle
- Status
- What's next
- Summary

# What is Waffle

- Yet another library that abstracts the GL winsys interaction
  - It is not SDL, there is no input handling etc
  - Zero platform dependant code
  - Platform & winsys - purely a runtime decision

# Waffle API

waffle_display_connect
waffle_display_disconnect
waffle_display_supports_context_api
waffle_display_get_native

waffle_window_create
waffle_window_destroy
waffle_window_show
waffle_window_swap_buffers
waffle_window_get_native

waffle_dl_can_open
waffle_dl_sym
and a few others

# glx

XOpenDisplay

glXChooseFBConfig

glXGetFBConfigAttrib

glXGetVisualFromFBConfig

glXCreateNewContext

xcb_create_window_checked

# cgl

CGLChoosePixelFormat

CGLCreateContext

initWithFrame:NSMakeRect

# egl

eglGetDisplay

eglInitialize

eglChooseConfig

eglCreateContext

eglCreateWindowSurface

# wgl

CreateWindow

GetDC

ChoosePixelFormat

wglCreateContext

# Waffle

waffle_init

waffle_display_connect

waffle_config_choose

waffle_context_create

waffle_window_create

# Retro-fitting wgl into waffle

- waffle_display_connect
  - Create “root” window
  - Create a context an query the supported extensions
- waffle_config_choose
  - Create client window
  - Choose the config
- waffle_context_create
  - WglCreateContext
- waffle_window_create
  - ShowWindow

# Retro-fitting wgl into waffle(2)

- A few extra quirks needed
  - wglGetProcAddress requires active context
  - dlopen/dlsym - LoadLibraryA/GetProcAddress and OpenGL ES*.

# Status

- All the code is at github, to be merged soon ™
- Requires minor update of piglit, due to the wglGetProcAddress issue mentioned previously

# What's next

- Get it upstream
- Add the missing get_native hooks
- Cleanup piglit to consistently use waffle and remove glut dependency
- Add GL dispatch into waffle ?
- Support for multi-monitor setups.

# Summary

- Code is out there and works – tested against Windows Vista/7 on Nvidia based hardware

  piglit 228a0530149, Windows 7 64bit, Nvidia GT 120M

  summary:

  pass: 10087

  fail: 1446

  crash: 24

  skip: 5306

  total: 16864

- Beware - GPU lockups are common on Windows

# References

- Waffle with WGL support
  https://github.com/evelikov/waffle/commits/yet-another-round-of-msvc-fixes-1.2

- Piglit with Waffle WGL
  https://github.com/evelikov/piglit/commits/waffle-WGL-1.2

- How to build, use and package WGL enabled Waffle/piglit
  https://github.com/evelikov/waffle/releases/tag/v1.1